

Mercury

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[Risks of Mercury Thermometers](#)

Mercury thermometers are both an environmental and a health and safety problem. Broken thermometers are a potential source of injury from the broken glass, as well as a chemical hazard from the mercury in the thermometer.

Mercury has many toxic effects in the body. If a thermometer is broken and not properly cleaned up, tiny droplets of mercury can evaporate over time. When mercury vapor is inhaled, it enters the blood. Breathing mercury vapors over a long period of time can damage the brain, spinal cord, kidneys and liver. Children and fetuses are at special risk. Swallowing or touching mercury metal is not nearly as toxic; thus if a broken thermometer is cleaned up properly and promptly people will not be harmed. The mercury in a thermometer is not absorbed if it is swallowed.

Mercury was used for many years in thermometers designed for household use because no alternatives were available. However, this is no longer the case. In July 2001, the American Academy of Pediatrics issued a policy statement about the health effects of mercury, and urged doctors and parents to stop using mercury thermometers and to dispose of them properly.

Improper disposal of a mercury thermometer can contaminate lakes and streams, and the mercury accumulates in the bodies of fish and wildlife. Natural processes can convert mercury in sediments into methylmercury. This type of mercury is harmful if it is ingested, such as eating fish in which methylmercury has accumulated.

Should a mercury thermometer break, parents and teachers are reminded that they should NEVER use a vacuum cleaner to clean up the mercury. The state of Tennessee has a fact sheet describing proper cleanup procedures for broken thermometers at:

<http://www2.state.tn.us/health/FactSheets/mercury.htm>.

Rather than possibly having to clean up a broken thermometer, citizens of Tennessee are encouraged to participate in local thermometer exchange events, co-sponsored by the Departments of Health and Environment and Conservation, where they can exchange a mercury thermometer for a safe, easier-to-read digital thermometer.

Mercury thermometers, as well as other types of mercury-containing waste such as old non-digital thermostats, barometers, meat thermometers, candy thermometers, manometers and other household mercury waste or devices can be brought to the nearest local Household Hazardous Waste Center, where it will be accepted for proper disposal.

Chemistry of Mercury

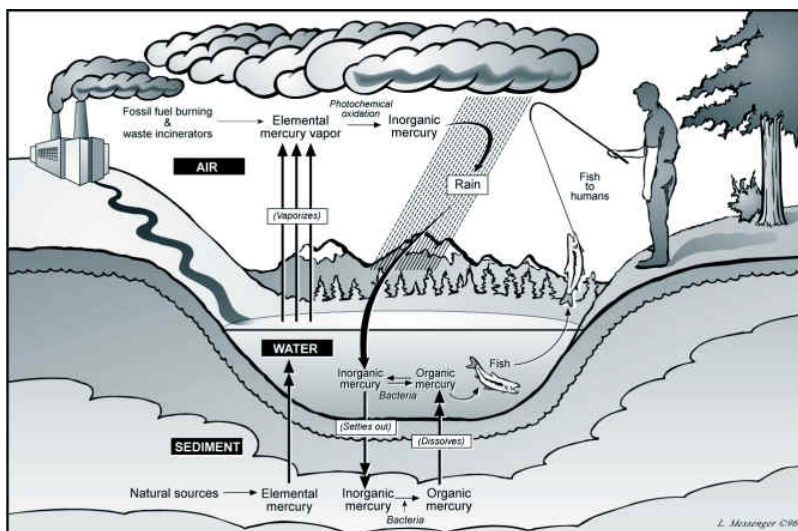
Mercury occurs naturally in the environment and exists in several forms. These forms can be organized under three headings: metallic mercury (also known as elemental mercury), inorganic mercury, and organic mercury. Metallic mercury is the kind of mercury found in thermometers. It can easily evaporate and breathing it can cause harm.

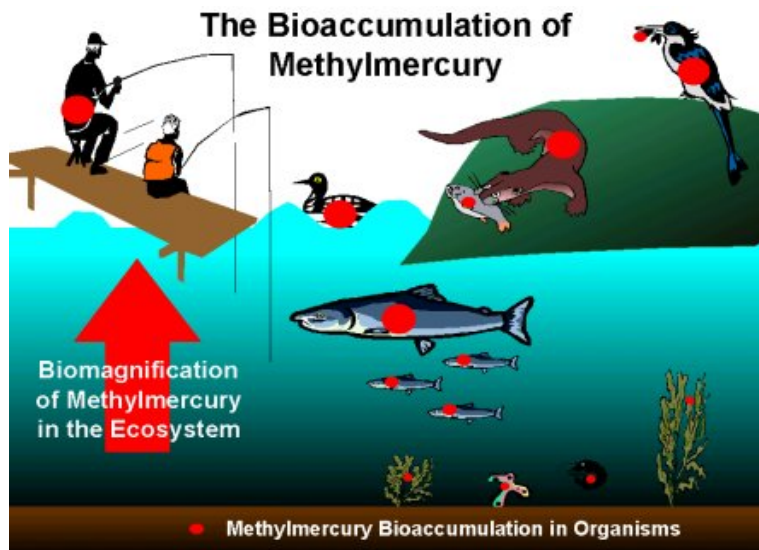
Inorganic mercury compounds occur when mercury combines with elements such as chlorine, sulfur, or oxygen. These mercury compounds are also called mercury salts. Most inorganic mercury compounds are white powders or crystals, except for mercuric sulfide (also known as cinnabar) which is red and turns black after exposure to light. Mercury salts can cause toxic effects if they are ingested.

When mercury combines with carbon, the compounds formed are called "organic" mercury compounds or organomercurials. The most common organic mercury compound in the environment is methylmercury which bioaccumulates in fish and can be harmful if eaten.

Mercury cycles in the environment as a result of natural and human activities.

The Mercury Cycle





Additional Resources

American Association of Pediatrics

<http://www.aap.org/mrt/July01.htm>

USGS Mercury (methylmercury) in the Environment

www.usgs.gov/themes/factsheet/146-00/

University of Wisconsin at Eau Claire

http://www.uwec.edu/piercech/Hg/mercury_water/cycling.htm

Centers for Disease Control and Prevention

Mercury in Vaccines

<http://www.cdc.gov/nip/vacsafe/concerns/thimerosal/thimerosal-vacs-facts.htm>

Mercury Contamination of Aquatic Ecosystems

<http://wi.water.usgs.gov/pubs/FS-216-95>

Mercury Research in the USGS

<http://minerals.usgs.gov/mercury/>

U.S. EPA Mercury Website

www.epa.gov/mercury/

Mercury in the Environment

by Environment Canada

<http://www.ec.gc.ca/MERCURY/EN/bf.cfm>

Mercury in Schools and Homes

<http://www.mercuryinschools.uwex.edu/mercury/index.htm>

South Florida Restoration Science Forum

http://sofia.usgs.gov/sfrsf/rooms/mercury/food_chain/ &

http://sofia.usgs.gov/sfrsf/rooms/acme_sics/